SOAH DOCKET NO. 582-09-0651
TCEQ DOCKET NO. 2008-0293-AIR

APPLICATION OF FLINT HILLS RESOURCES, LP FOR AN AMENDMENT TO AIR QUALITY PERMIT NUMBERS 8803A AND PSD-TX-413M8 FOR THE WEST REFINERY IN NUECES COUNTY, TEXAS	§ § § § §	**BEFORE THE STATE OFFICE OF ADMINISTRATIVE HEARINGS**

FLINT HILLS RESOURCES, LP'S REPLY TO CITIZENS FOR ENVIRONMENTAL JUSTICE'S EXCEPTIONS TO THE ADMINISTRATIVE LAW JUDGE'S PROPOSAL FOR DECISION

COMES NOW Applicant Flint Hills Resources, LP ("FHR" or "Applicant") and, pursuant to 30 TEX. ADMIN. CODE § 80.257(a), files this reply to Protestant Citizens for Environmental Justice's ("CFEJ's" or "Protestant's") exceptions to the Administrative Law Judge's ("ALJ's") Proposal for Decision ("PFD") in the above-caption matter, which resolves both referred issues[1] in Applicant's favor. No exceptions were filed by Applicant, the Executive Director, or the Office of Public Interest Counsel.

Tellingly, CFEJ's exceptions are largely lacking in citations to the evidentiary record. Under TEX. GOVT. CODE § 2003.047(m), any Commission-made amendment to a PFD "shall be based solely on the record made before the administrative law judge." The Commission, therefore, should summarily disregard those CFEJ exceptions that are not supported with any citation to the evidentiary record.

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[1] The two issues referred to SOAH by the Commission in its September 26, 2008 Interim Order were:

A) Whether Flint Hills Resources' use of emission factors with regard to the changes requested in the amendment application or the changes in the proposed Special Conditions and MAERT is adequate to assure compliance with all related applicable requirements and limits; and

B) Whether the monitoring requirements that are proposed for change in the amendment application or changed in the proposed Special Conditions or MAERT, as applicable, are sufficient to determine compliance with the permit limits.

To the extent CFEJ has provided citations to the evidentiary record, its exceptions are merely restatements of its closing arguments, and therefore concern issues that were fully vetted in previous briefing and considered by the ALJ in the PFD. Accordingly, FHR incorporates herein, and respectfully refers the Commission to its Closing Argument and Response to Closing Arguments (see Attachments A and B to this reply), as well as the ALJ's treatment of these issues in the PFD.

The following briefly addresses each section of CFEJ's exceptions, primarily by referencing those sections of Applicant's Closing Argument and Response to Closing Arguments at which CFEJ's arguments were previously addressed.

I.
CFEJ'S INTRODUCTION AND BACKGROUND

In its "Introduction and Background" section, CFEJ "urges the Commission to consider" that TCEQ's flexible permit program has not been SIP-approved by EPA.[2] The Commission, of course, is well aware of this fact. But more importantly for present purposes, this is not an exception to anything in the PFD. In fact, it has no relevance whatsoever to either of the two issues referred by the Commission to SOAH. Further, while there has been correspondence between EPA and TCEQ regarding the flexible permit program, TCEQ has defended the program in its letters to EPA, and it remains in force. Finally, it is not even as if Applicant has applied for a *new* flexible permit; the pending amendment application would only incorporate into Applicant's *existing* air permit (which happens to be a flexible permit issued many years ago) previously issued and presently valid authorizations for pollution control and other projects that have been completed, and are currently operating at FHR's West Refinery. Concerns about

[2] CFEJ's Exceptions at p. 1.

the SIP-approval status of TCEQ's flexible permit program are simply not relevant to the Commission's consideration of this PFD.

CFEJ also refers to the possibility that, in some future yet-to-be initiated rulemaking, the 9% insignificant emission factor provided for at 30 TEX. ADMIN. CODE §116.716 may be removed from the flexible permit program.[3] Applicant struggles to comprehend CFEJ's point in making this observation. Throughout these proceedings CFEJ's basic concern has been that FHR has *under*estimated emissions. Why, then, would it seemingly complain about a 9% *upward* adjustment to estimated emission rates, which only builds additional conservativism into FHR's emission caps? As Applicant observed in its Response to Closing Briefs, this inconsistency suggests that CFEJ would have been dissatisfied no matter how FHR had calculated its cap contributions.

II.
APPLICANT'S USE OF UPDATED EMISSIONS FACTORS TO CALCULATE CAP CONTRIBUTIONS IN ITS PERMIT AMENDMENT APPLICATION

Applicant fully addressed CFEJ's criticisms regarding the use of AP-42 factors to estimate emissions at pages 6-18 of its Closing Argument (Attachment A to this reply), and at pages 3-9 of its Response to Closing Arguments (Attachment B to this reply). Rather than repeating those entire discussions here, Applicant incorporates by reference those sections of its previous briefs, and offers only the following additional comments regarding CFEJ's exceptions on this issue.

CFEJ first argues that the PFD "mischaracterizes CFEJ [*sic*] proposed means of addressing the problem of using AP-42 emission factors to [*sic*] short-term scenarios."[4] But as

[3] CFEJ's Exceptions at p. 2.
[4] CFEJ's Exceptions at p. 2.

the PFD concludes at pages 18-20, there is no "problem" associated with using AP-42 emission factors to estimate short-term emissions from the sources at issue:

> Therefore, because AP-42 emission rate factors have widespread acceptance by industry and regulatory agencies for establishing emission rate cap contributions, and because the evidence established that the FHR Heaters in question have actual emissions significantly lower than the applicable AP-42 emission rate factors, the ALJ finds that FHR's use of emission factors in this case is adequate to assure compliance with all related applicable requirements and limits.[5]

Because no "problem" exists, the question of whether the PFD mischaracterizes how CFEJ would address such a "problem" is inconsequential.[6]

CFEJ also asserts that "the use of AP-42 emission factors for leaking components may not be sufficiently conservative ..."[7] This reflects a continued misunderstanding on CFEJ's part, as Applicant did not use any AP-42 factors to calculate emissions from any "leaking components." Applicant did use TCEQ's fugitive emission factors to conservatively calculate fugitive emissions from the pipes, valves and components associated with the SNCR system installed at the FCCU CO Boiler, but they are not AP-42 factors.[8] At any rate, Applicant has previously addressed all of CFEJ's arguments concerning both the use of AP-42 factors (at pp. 6-18 of its Closing Argument and pp. 3-9 of its Response to Closing Arguments) and calculation of fugitive emissions from pipes, valves and components associated with the SNCR system (at pp. 23-25 of its Closing Argument and pp. 9-11 of its Response to Closing Arguments).

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[5] PFD at p. 20.

[6] Although it does not matter for present purposes, the PFD's characterization of CFEJ's proposed solution to a non-existent "problem" is, in fact, accurate. CFEJ states in its exceptions that it would not have FHR apply the emission rate for the worst-performing source identified by EPA, but would merely have FHR apply an adjustment factor between a certain range (167% - 1,000%). This is a distinction without a difference because the exact adjustment factor in any given case would presumably be determined by looking at the worst-performing source in EPA's background data (if it even exists and can be interpreted) according to CFEJ's approach, which, incidentally, not even its own witness follows—Mr. Bilsky testified that he has applied AP-42 factors with no adjustment on hundreds of occasions. Tr. at 62:7-63:2, 66:8-12, 67:7-22, 78:12-19, 116:17-20 (Bilsky on cross).

[7] CFEJ's Exceptions at p. 2.

[8] Tr. at 370:23-371:10 (Olson on re-direct).

Finally, CFEJ suggests that Applicant's continuous emissions monitoring system ("CEMS") data, in fact, does not show "that actual emissions of CO from the Heater [*sic*] are far below the cap contributions calculated using the update [*sic*] AP-42 factors."[9] In support of this contention, CFEJ asserts that Applicant's witness Curtis Taylor testified that "scrubbing of the CEMS data and back calculation was necessary to make his point because 75% of the CEMS data he reviewed for NO_X exceedances was invalid data."[10] CFEJ also claims that "Mr. Taylor conceded on rebuttal that there could well be invalid data throughout the CEMS results."[11] This exception lacks merit for multiple reasons, as discussed below.

At the outset, note that testimony about invalid *NO_X* data would not be relevant to the question of whether the *CO* data supports the Applicant's use of AP-42 factors to estimate *CO* emissions. Additionally, note that CFEJ provides no citations to the record here, and therefore no basis for upsetting the PFD.[12] But more fundamentally, CFEJ's characterizations of Mr. Taylor's testimony are incorrect and misleading. CFEJ's references to "scrubbing" and "back calculation" appear to confuse Mr. Taylor's testimony concerning the invalid NO_X data with his rebuttal of Mr. Bilsky's allegation that an inverse NO_X/CO correlation was not apparent in the data (in fact it was).[13] And regarding CFEJ's observation that 75% of the CEMS data Mr. Taylor reviewed for NO_X "exceedances" was invalid data, CFEJ neglected to mention that the "data he reviewed" was the data underlying the 21 occasions over the course of two years in which the NO_X CEMS recorded hourly NO_X concentrations in excess of the relevant calculated emission cap contribution.[14] Thus, it was not a random sampling of NO_X data that Mr. Taylor reviewed

[9] CFEJ's Exceptions at p. 3.
[10] CFEJ's Exceptions at p. 3.
[11] CFEJ's Exceptions at p. 3.
[12] *See* TEX. GOVT. CODE § 2003.047(m).
[13] Tr. at 289:20-296:12 (Taylor on direct).
[14] Tr. at 283:2-8 (Taylor on direct); Tr. at 311:10-312:13 (Taylor on cross).

and found 75% invalid data, but rather the data associated with very unusual, abnormally high NO_X readings, which represented only 0.12% of the operating hours over the course of two years.[15] In examining these 21 data points, he found that 15 of them (or roughly 75%) were the result of a CEMS malfunction, which explained why they were abnormally high.[16] This in no way invalidates the thousands of other data points, representing 99.88% of the operating hours over two years, showing emission rates significantly lower than the calculated cap contributions.[17] Finally, Mr. Taylor did not concede that "there could well be invalid data throughout the CEMS results"[18]—rather, he testified only that it was possible that some of the many thousands of hourly CEMS data points over the course of two years were invalid because of CEMS malfunctions, which, he testified, are recorded by FHR's analyzer technicians.[19] And, again, this does not discount what is shown by 99.88% of the hourly CEMS readings, which is that the NO_X emission rate at the No. 2 Parex Hot Oil Heater is significantly lower than the emission rate cap contribution calculated using the applicable AP-42 emission factor.[20]

III.
APPLICANT'S CALCULATION OF SHORT-TERM AMMONIA CAP CONTRIBUTIONS FOR PIPING AND OTHER FUGITIVE COMPONENTS ASSOCIATED WITH THE SNCR SYSYEM INSTALLED AT THE FCCU CO BOILER

CFEJ's exception on this issue[21] is not supported with a single citation to any testimony, and is merely a re-urging of an argument that was properly rejected by the ALJ at pages 24-26 of the PFD. Applicant has previously addressed this argument at pp. 23-25 of its Closing Argument, and at pp. 9-11 of its Response to Closing Arguments. Applicant will not repeat

[15] Tr. at 283:2-284:17 (Taylor on direct).
[16] Tr. at 283:25-284:17 (Taylor on direct).
[17] Tr. at 283:9-13 (Taylor on direct).
[18] CFEJ's Exceptions at p. 3.
[19] Tr. at 312:2-13 (Taylor on cross).
[20] FHR EX. 1 (Taylor pre-filed) at 28:1-5; FHR EX. 3 (2007 CEMS data); FHR EX. 4 (2008 CEMS data).
[21] CFEJ's Exceptions at pp. 3-5.

those entire discussions here except to note the following highlights: **(1)** the application of various control efficiencies for each component type (to account for the fact that FHR uses an audio/visual/olfactory or "AVO" monitoring program to detect and repair any leaks that might occur) is consistent with TCEQ guidance and practice;[22] **(2)** CFEJ's recommended departure from TCEQ guidance and practice can be explained by the fact that its witness, Mr. Bilsky, did not have a proper understanding of the meaning of the control efficiencies utilized by FHR or the significance of their use;[23] **(3)** given the distinct odor of ammonia and the ability to visually detect liquid leaks, the AVO monitoring required by the permit is extremely effective in detecting any ammonia leaks that might occur;[24] and **(4)** there have been no fugitive ammonia leaks over the more than two years of operation of the SNCR system,[25] which demonstrates that actual emissions from the FCCU Fugitives are less than the proposed cap contributions.[26]

IV.
CONCLUSION

For the foregoing reasons, CFEJ's exceptions the the ALJ's PFD are not supportable and provide no basis for amending the PFD or the ALJ's Proposed Order. Accordingly, Applicant FHR respectfully requests that the Commission issue the ALJ's Proposed Order.

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[22] Tr. at 125:10-126:19, 128:10-11, 129:1-9 & 17-24, 157:10-17 (Bilsky on cross); Tr. at 331:2-10, 332:3-6, & 333:24-334:6 (Olson on direct).

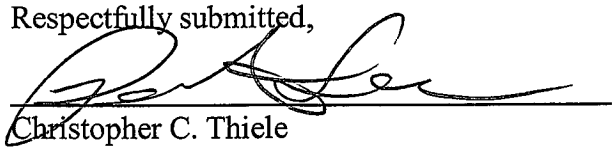
[23] Tr. at 336:16-22 (Olson on direct). Contrary to Mr. Bilsky's understanding, the control efficiencies reflect an overall reduction in emissions from the combination of leaking and non-leaking components, not simply a reduction in the number or percentage of leaking components. Tr. at 336:8-15 (Olson on direct); FHR EX. 24 (Olson demonstrative). Additionally, the use of the control efficiencies does *not* result in a limit on the number certain types of components (e.g., pumps) that can be leaking at any one time. Tr. at 335:22-336:15 (Olson on direct); Tr. at 365:14-19 (Olson on cross).

[24] Tr. at 272:7-14 (Taylor on direct).

[25] Tr. at 272:15-25 (Taylor on direct).

[26] Tr. at 273:5 (Taylor on direct).

Respectfully submitted,



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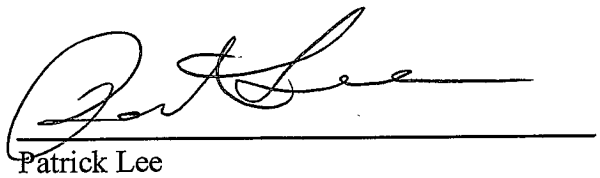
CERTIFICATE OF SERVICE

I hereby certify that, on this the 5th day of August 2009, a true and correct copy of the foregoing document has been served via hand delivery, facsimile, electronic mail, overnight mail, U.S. Mail, and/or Certified Mail, Return Receipt Requested, on the parties whose names appear below.



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ATTACHMENT A

FHR's Closing Argument

SOAH DOCKET NO. 582-09-0651
TCEQ DOCKET NO. 2008-0293-AIR

APPLICATION OF FLINT HILLS RESOURCES, LP FOR AN AMENDMENT TO AIR QUALITY PERMIT NUMBERS 8803A AND PSD-TX-413M8 FOR THE WEST REFINERY IN NUECES COUNTY, TEXAS	§ § § § § § §	**BEFORE THE STATE OFFICE OF ADMINISTRATIVE HEARINGS**

APPLICANT'S CLOSING ARGUMENT

TO THE HONORABLE ADMINISTRATIVE LAW JUDGE:

COMES NOW Applicant Flint Hills Resources, LP ("Applicant" or "FHR") and files this its closing argument in the above-captioned proceeding. Based on the record in this proceeding, and for the reasons set forth below, FHR has demonstrated, by proof exceeding a preponderance of evidence,[1] and in satisfaction of the Texas Commission on Environmental Quality's ("TCEQ's" or "Commission's") September 26, 2008 Interim Order, that: 1) its use of emission factors with regard to changes requested in the amendment application or the changes in the proposed permit special conditions and maximum allowable emission rate table ("MAERT") is adequate to assure compliance with all related applicable requirements and limits; and 2) the monitoring requirements that are proposed for change in the amendment application or changed in the permit special conditions or MAERT, as applicable, are sufficient to determine compliance with permit limits. Therefore, FHR respectfully requests that the Administrative Law Judge ("ALJ") recommend issuance of the amendment of Flexible Permit No. 8803A/PSD-TX-41348.

[1] 30 TEX. ADMIN. CODE § 80.17(a). The preponderance of evidence standard does not necessarily require that the party with the burden "explain or disprove the allegations of its opponent." *Gooch v. Davidson*, 245 S.W.2d 989, 991 (Tex. Civ. App.—Amarillo 1952, no writ).

I.
INTRODUCTION/BACKGROUND

A. Flexible Permit Nos. 8803A/PSD-TX-413

Flexible Permit Nos. 8803A/PSD-TX-413 (the "Permit") authorizes operations at FHR's West Refinery in Corpus Christi, Texas. The Permit covers literally hundreds of individual refinery emissions sources that, combined, are authorized to emit more than 3,000 tons per year of nitrogen oxides ("NO_X"), more than 2,000 tons each of carbon monoxide ("CO") and volatile organic compounds ("VOC"), approximately 1,000 tons of sulfur dioxide ("SO_2"), more than 500 tons per year of particulate matter/particulate matter with a diameter of less than 10 microns ("PM/PM_{10}"), and lesser amounts of other air contaminants.[2]

The Permit is a flexible permit issued pursuant to 30 TEX. ADMIN. CODE Chapter 116, Subchapter G. As such, the Permit, for the most part, does not establish source-specific emission limits, but instead establishes overall emission caps for various air contaminants (e.g., NO_X, CO, VOC, and PM) equal to the sum of the emission cap contributions of the various sources covered by the cap.[3] Significantly, the source-specific emission cap contributions are not limits.[4] Instead, pursuant to TCEQ's flexible permit rules, FHR is allowed to make certain physical and operational changes and exceed the source-specific cap contributions without triggering the need to amend the permit, provided the overall emission caps are not exceeded.[5]

B. FHR's August 9, 2006 Permit Amendment Application

With most permit amendment applications, the applicant is seeking authorization to construct or expand a source of air emissions, or make some other change that would affect the

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[2] FHR EX. 8 (April 18, 2007 draft permit) pp. 55-58 of 71; FHR EX. 10 (amended permit issued on November 12, 2008) pp. 60-65 of 65.
[3] FHR EX. 11 (Kirchner pre-filed), 10:1-5.
[4] Tr. at 19:20-20:5 (Kirchner on cross); Tr. at 27:3-17 (Kirchner on re-direct); Tr. at 281:5-9 (Taylor on direct); Tr. at 320:11-19 (Olson on direct).
[5] 30 TEX. ADMIN. CODE §§ 116.718, 116.721(c).

amount or type of emissions it is authorized to release.[6] That is not the case with FHR's August 9, 2006 permit amendment application (the "Application"), as it is not a typical permit amendment application.[7] Its purpose is not to authorize any new construction or operational change, but only to incorporate into the Permit previously issued and presently valid authorizations for pollution control and other projects that have already been completed and are currently operating at FHR's West Refinery.[8] FHR's reason for submitting the Application was to comply with the terms of a 2001 United States Environmental Protection Agency ("EPA") consent decree, which required the authorizations for certain of the previously authorized pollution control projects to be consolidated into the Permit.[9]

The six previously authorized projects addressed by the Application are: (1) installation of low-NO_X burners on the Crude Charger Heater and the Crude Vacuum Heater ("the West Crude Heaters") to reduce NO_X emissions, (2) installation of a steam injection system on the No. 2 Parex Hot Oil Heater to reduce NO_X emissions, (3) installation of a selective non-catalytic reduction ("SNCR") system on the FCCU CO Boiler/Scrubber to reduce NO_X emissions, (4) installation of a caustic scrubber on the Monroe API Separator to reduce sulfur compound (i.e., hydrogen sulfide and SO_2) emissions, (5) installation of a floating roof on Tank 08FB17 to reduce VOC emissions, and (6) storage of UDEX Reformate in Tank 08FB17.[10] Accordingly, out of the hundreds of emissions sources authorized by the Permit, the Application involves only three existing heaters, one existing boiler, one existing flare, one existing tank, and the addition of a relatively minor number of new piping, connectors, valves and other components associated with the installation of the SNCR system and caustic scrubber.

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[6] FHR EX. 1 (Taylor pre-filed), 10:4-7.
[7] *Id.* at 10:4, 7.
[8] *Id.* at 10:7-11.
[9] *Id.* at 21:13–22:2.
[10] *Id.* at 10:13-20.

In addition to incorporating the existing authorizations into the permit, FHR used the occasion of this amendment to revise previously calculated emission rates for certain sources based on updated emission factors.[11] Specifically, FHR recalculated the CO, PM, and VOC emission rate cap contributions for the West Crude Heaters and the No. 2 Parex Hot Oil Heater to reflect updated AP-42 emission factors.[12] As a result, in addition to decreasing the cap on NO_X and pound per hour VOC emissions (resulting from the installation of NO_X controls and the floating roof) and creating a new cap for ammonia emissions (associated with the installation of the SNCR system), FHR proposes to increase the CO, PM, and ton per year VOC emission caps as a result of the incorporation of the emission factor updates.[13]

C. The Commission's Interim Order

Given the unique nature of the Application and the limited scope of the issues raised in the hearing requests filed by Citizens for Environmental Justice ("CFEJ" or "Protestant"),[14] FHR chose not to follow the direct referral process, where all aspects of the Application could have been at issue in the hearing.[15] Instead, FHR chose to follow the process provided under TEX. WATER CODE § 5.556, which required the Commission to "limit the number and scope of the issues to be referred to the State Office of Administrative Hearings for a hearing."[16] After considering the public comments and hearing requests filed regarding the Application, and in recognition of the fact that this Application only involves a very small subset of the hundreds of emission sources authorized by the Permit, and to avoid the unnecessary expenditure of state and

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[11] *Id.* at 22:14-18.
[12] FHR EX. 11 (Kirchner pre-filed), 11:21-12:3.
[13] FHR EX. 12 (Summary of Emission Rate Cap Changes).
[14] CFEJ's hearing request addressed the following discrete issues: (1) FHR's use of AP-42 emission factors to calculate emissions, (2) the adequacy of certain monitoring requirements in the draft permit, and (3) environmental justice.
[15] *See* TEX. WATER CODE § 5.557, providing that in a direct referral, the purpose of the hearing is to determine "whether the application complies with all applicable statutory and regulatory requirements."
[16] TEX. WATER CODE § 5.556(e)(1).

private resources in litigating issues that are in no way related to this Application, in its September 26, 2008 Interim Order, the Commission complied with the statutory mandate by limiting the issues to the following:

A) Whether Flint Hills Resources' use of emission factors with regard to the changes requested in the amendment application or the changes in the proposed Special Conditions and MAERT is adequate to assure compliance with all related applicable requirements and limits; and

B) Whether the monitoring requirements that are proposed for change in the amendment application or changed in the proposed Special Conditions or MAERT, as applicable, are sufficient to determine compliance with the permit limits.

Accordingly, only two aspects of FHR's request to amend the Permit are relevant to this proceeding: FHR's use of emission factors to calculate emissions and the monitoring requirements contained in the draft permit. However, not all of the emission factors mentioned in FHR's amendment application, and not all of the monitoring requirements found in the draft permit, are relevant. Rather, pursuant to the Commission's Interim Order, only those associated with a change proposed in the Application may be relevant.

The Commission's Interim Order further directs that the only issue to be considered with respect to such emission factors and monitoring requirements is whether they are adequate to assure compliance with applicable requirements and permit limits, questions that must be viewed in light of the fact that the Permit is a flexible permit. As explained above, because the Permit is a flexible permit it, for the most part, does not establish limits for individual emission sources but instead establishes overall emission caps that serve as the permit limits. Thus, the relevant issues in this proceeding are whether emission factors and monitoring requirements proposed for

change are sufficient to ensure compliance with the overall emission caps contained in the Permit.[17]

Finally, the Commission's limitation of the number and scope of the issues to be addressed in the hearing cannot and does not mean that FHR is subject to any heightened scrutiny or standard with respect to these issues. Rather, FHR is subject to the same requirements and standards as any other permit applicant, as there is simply no practical or legal basis for claiming otherwise. Thus, as explained below, Mr. Bilsky's contention that the Commission's Interim Order somehow warrants a first-of-its-kind, heightened review of the appropriateness of relying on AP-42 emission factors in air permit applications, or a departure from the methods recommended by TCEQ for calculating fugitive emissions, is simply incorrect.

II.
USE OF UPDATED AP-42 EMISSION FACTORS TO CALCULATE CAP CONTRIBUTIONS FOR THE WEST CRUDE HEATERS AND NO. 2 PAREX HOT OIL HEATER

As is the case for many of the sources at the West Refinery, when FHR originally calculated cap contributions for emissions of CO, PM/PM_{10} and VOC from the West Crude Heaters and the No. 2 Parex Hot Oil Heater (collectively, "the Heaters"), it used emission factors provided in Section 1.4 of a publication issued by EPA known as AP-42.[18] Chapter 1 of AP-42 is related to external combustion sources.[19] Section 1.4 of Chapter 1 contains emission factors associated with natural gas combustion.[20] The values used by FHR for the Heaters come from Tables 1.4-1 and 1.4-2 of Section 1.4.[21]

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[17] Although the West Crude Heaters and No. 2 Parex Hot Oil Heater are each subject to a 0.045 lb/MMBtu NO_X limit, FHR's compliance with such limits has not been contested by CFEJ.
[18] FHR EX. 11 (Kirchner pre-filed), 11:21-12:1, 15:13-15.
[19] *Id.* at 15:15-16.
[20] *Id.* at 15:16-17.
[21] *Id.* at 15:14.

As stated in the Introduction to AP-42, "[a]n AP-42 emission factor is a representative value that attempts to relate the quantity of a pollutant released to the atmosphere with an activity associated with the release of that pollutant."[22] AP-42 factors are based on real-world emissions data that is grouped into related clusters based on criteria such as source category, process type, representativeness of the source, emission source, equipment design, operating conditions, and raw material or fuel characteristics.[23] They are extensively used by industry and environmental consulting firms to prepare permit applications, and their use is universally accepted by air permitting authorities such as TCEQ.[24] For heaters such as those at the West Refinery, there are no emission factors more appropriate to use for calculating emissions in a permit application than those set forth in AP-42.[25]

In 1998, EPA updated the AP-42 factors in Section 1.4 to incorporate new available data on emissions from gas-fired combustion devices.[26] In light of this intervening update, FHR decided to re-calculate the CO, PM/PM_{10} and VOC cap contributions for the Heaters in the Application.[27] Note that, while one purpose of the Application is to roll-in authorizations for some pollution control projects completed at the Heaters (installation of low-NO_X burners on the West Crude Heaters and a steam injection system on the No. 2 Parex Hot Oil Heater), these projects only reduced emissions of NO_X, and had no appreciable effect on emissions of CO, PM/PM_{10} or VOC.[28] Therefore, no changes to the Heaters are being proposed that would effect actual emissions of these pollutants, and the respective calculated cap contributions are being

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[22] *Id.* at 16:2-4.
[23] *Id.* at 17:9-12.
[24] *Id.* at 17:19-20, 18:3-8; FHR EX. 18 (Olson pre-filed), 8:19-21; Tr. at 19:16-19 (Kirchner on cross); Tr. at 32:21-22 (Olson on cross); Tr. at 44:19-21 (Olson on re-direct); Tr. at 64:12-17, 66:19-22 (Bilsky on cross); Tr. at 265:17-19, 266:22-267:1 (Tamer on cross).
[25] FHR EX. 18 (Olson pre-filed), 8:20-21; Tr. at 18:12-16, 21:21-22 (Kirchner on cross).
[26] FHR EX. 11 (Kirchner pre-filed), 18:9-13.
[27] *Id.* at 11:21-12:3.
[28] FHR EX. 1 (Taylor pre-filed), 12:18-13:2, 14:9-11.

updated only to reflect the 1998 update to the AP-42 factors. The proposed adjustments for each pollutant are discussed below.

A. CO

As a result of FHR's re-calculations based on the 1998 update to the AP-42 emission factors for CO, the No. 2 Parex Hot Oil Heater CO cap contributions are proposed to be increased from 11.66 lb/hr and 51.01 ton/year to 23.98 lb/hr and 105.08 ton/year, the Crude Charge Heater CO cap contributions are proposed to be increased from 9.22 lb/hr and 40.44 ton/year to 18.97 lb/hr and 83.17 ton/year, and the Crude Vacuum Heater CO cap contributions are proposed to be increased from 5.92 lb/hr and 25.94 ton/year to 7.99 lb/hr and 34.99 ton/year.[29]

Again, these values are not limits, but merely calculated emission rates that go into a CO cap for all sources at the site covered by the permit, with the cap being the only actual limit on CO emissions.[30] For some perspective on the relative magnitude of the Heaters' CO emissions, consider that the cap is 912.63 lb/hr and 2,747.94 ton/year.[31] On an annual basis, therefore, CO emissions from the Heaters represent only about 8.1% of the site-wide cap.

After the recent installation of the pollution control projects (low-NO_X burners on the West Crude Heaters and a steam injection system on the No. 2 Parex Hot Oil Heater), FHR performed stack tests on emissions of NO_X and CO from the Heaters.[32] The results of the stack tests showed that CO emissions from the Heaters were below the calculated emission rate cap

[29] FHR EX. 12 (Summary of Emission Rate Cap Changes).
[30] Tr. at 19:20-20:5 (Kirchner on cross); Tr. at 27:5-17 (Taylor on re-direct); Tr. at 320:11-19 (Olson on direct).
[31] FHR EX. 8 (April 18, 2007 draft permit), p. 55 of 71.
[32] Tr. at 281:18-24 (Taylor on direct).

contributions of 23.98 lb/hr (No. 2 Parex Hot Oil Heater) and 26.96 lb/hr (West Crude Heaters).[33]

CO emissions from the Heaters are also monitored using a continuous emissions monitoring system ("CEMS").[34] The CEMS are calibrated daily and operated in accordance with the West Refinery's CEMS Quality Assurance/Quality Control program, which, in turn, was established in accordance with EPA's regulations setting forth its New Source Performance Standards for various source types.[35] They are also tested periodically by third party testers to further demonstrate their accuracy.[36]

CEMS data from 2007 and 2008 show that CO emissions from the Heaters are consistently below the calculated emission rate cap contributions.[37] In fact, many of the readings were negative numbers, meaning that that the analyzer was detecting CO concentrations at the very low end of the analyzer's range.[38] In the two years' worth of CEMS data for the No. 2 Parex Hot Oil Heater, there was one lb/hr value in excess of the calculated cap contribution, which would represent a compliance rate of 99.99%.[39] And the lone outlier was associated with a CEMS malfunction, and so was not even indicative of actual emissions.[40] With respect to the West Crude Heaters, there were 30 values in excess of the combined calculated cap contributions, which would represent a compliance rate of 99.83%.[41] And of those 30 values, 29 were associated with a process upset, and so occurred during operating conditions not even covered by the permit (the cause of the remaining value could not be determined, although it too

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[33] *Id.* at 282:4-7.
[34] FHR EX. 1 (Taylor pre-filed), 23:13-19.
[35] *Id.* at 26:10-19.
[36] *Id.* at 27:1-4.
[37] *Id.* at 27:5-29:5; FHR EX. 3 (2007 CEMS data); FHR EX. 4 (2008 CEMS data).
[38] FHR EX. 1 (Taylor pre-filed), 28:10-13, 29:2-5; Tr. at 296:14-297:22 (Taylor on direct).
[39] Tr. at 283:14-24 (Taylor on direct).
[40] *Id.* at 286:9-22.
[41] *Id.* at 287:21-288:7.

was also likely associated with a process upset).[42] These data, and the data from the stack tests conducted following installation of the pollution control projects, show that the AP-42 factors are extremely conservative estimations of CO emissions from the Heaters.

B. PM/PM_{10}

As a result of FHR's re-calculations based on the 1998 update to the AP-42 emission factors for PM/PM_{10}, the No. 2 Parex Hot Oil Heater PM/PM_{10} cap contributions are proposed to be increased from 1.46 lb/hr and 6.38 ton/year to 2.17 lb/hr and 9.5 ton/year, the Crude Charge Heater PM/PM_{10} cap contributions are proposed to be increased from 1.16 lb/hr and 5.05 ton/year to 1.72 lb/hr and 7.53 ton/year, and the Crude Vacuum Heater PM/PM_{10} cap contributions are proposed to be decreased from 1.36 lb/hr and 5.95 ton/year to 0.72 lb/hr and 3.16 ton/year.[43]

Again, these values are not limits, but merely calculated emission rates that go into a PM/PM_{10} cap for all sources at the site covered by the permit, with the cap being the only actual limit on PM/PM_{10} emissions.[44] For some perspective on the relative magnitude of the Heaters' PM/PM_{10} emissions, consider that the cap is 130.91 lb/hr and 548.97 ton/year.[45] On an annual basis, therefore, PM/PM_{10} emissions from the Heaters represent only about 3.7% of the site-wide cap.

To demonstrate compliance with the cap, FHR is required to perform monthly calculations based on actual operating parameters such as fuel usage.[46] Those monthly calculations demonstrate that actual site-wide PM/PM_{10} emissions are equal to about half of the

[42] *Id.* at 288:8-289:10.
[43] FHR EX. 12 (Summary of Emission Rate Cap Changes).
[44] Tr. at 19:20-20:5 (Kirchner on cross); Tr. at 27:5-17 (Taylor on re-direct); Tr. at 320:11-19 (Olson on direct).
[45] FHR EX. 8 (April 18, 2007 draft permit), p. 56 of 71.
[46] Tr. at 305:10-306:12 (Taylor on direct); Tr. at 324:7-14 (Olson on direct).

cap.[47] Because PM/PM_{10} emissions from the Heaters are such a small percentage of the site-wide PM/PM_{10} cap (approximately 3.7%), and because there is so much extra space in the cap as demonstrated by the monthly calculations, even if FHR had underestimated PM/PM_{10} emissions from the Heaters by a factor of two in calculating the updated cap contribution, the cap, which is the only actual limit on PM/PM_{10} emissions,[48] would still not be exceeded.[49]

However, as with CO, there are reasons to be confident that FHR did not underestimate PM/PM_{10} emissions from the Heaters at all. First, in calculating cap contributions for all pollutants from all heaters at the site, FHR assumed maximum firing rates.[50] But any given heater might go an entire year without ever firing at its maximum rate, and it would be inconceivable that all of the approximately 25 heaters at the site would ever be firing at their maximum rates all at the same time.[51] There is, therefore, a degree of conservativism built into the individual cap contributions from the Heaters, and an even higher degree of conservativism built into the cap for all combustion devices covered by the permit.[52] Second, as provided for by 30 TEX. ADMIN. CODE §116.716, FHR added an additional 9% "insignificant emission factor" to its calculated cap contributions for the Heaters,[53] which represents another level of conservativism.[54]

Third, EPA has said that it considers the AP-42 factors FHR used to calculate the PM/PM_{10} cap contributions for the Heaters to overestimate particulate matter emissions.[55] In fact, to account for that overestimation, EPA has proposed to reduce its national emissions

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[47] Tr. at 308:22-309:5 (Taylor on direct).
[48] Tr. at 320:11-19 (Olson on direct).
[49] Tr. at 309:1-5 (Taylor on direct).
[50] Tr. at 321:5-14 (Olson on direct).
[51] *Id.* at 322:4-14.
[52] *Id.* at 321:5-323:8.
[53] FHR EX. 11 (Kirchner pre-filed), 13:8-14; Tr. at 20:11-14 (Kirchner on cross).
[54] Tr. at 322:23-323:3 (Olson on direct).
[55] *Id.* at 354:18-356:4; FHR EX. 27 (excerpt from document on EPA website).

inventory by 95%, indicating that the degree to which EPA believes AP-42 overestimates particulate matter emissions from this type of source is significant.[56]

Finally, and perhaps most importantly, FHR's CO stack test data and CEMS data can be used as a surrogate for PM/PM_{10} and VOC.[57] This is because the presence of PM/PM_{10} and VOC in the exhaust from a gas-fired heater, like CO, is the result of incomplete combustion of the fuel gas.[58] The more complete the combustion, the less PM/PM_{10}, VOC and CO emissions; the less complete the combustion, the more PM/PM_{10}, VOC and CO emissions.[59] FHR's CO stack test and CO CEMS data show that the Heaters are achieving complete combustion, therefore establishing that the Heaters' PM/PM_{10} and VOC emission rates are similarly much lower than the updated emission factors.[60]

C. VOC

As a result of FHR's re-calculations based on the 1998 update to the AP-42 emission factors for VOC, the No. 2 Parex Hot Oil Heater VOC cap contributions are proposed to be increased from 0.41 lb/hr and 1.80 ton/year to 1.57 lb/hr and 6.88 ton/year, the Crude Charge Heater VOC cap contributions are proposed to be increased from 0.33 lb/hr and 1.43 ton/year to 1.24 lb/hr and 5.45 ton/year, and the Crude Vacuum Heater VOC cap contributions are proposed to be increased from 0.27 lb/hr and 1.19 ton/year to 0.52 lb/hr and 2.29 ton/year.[61]

Again, these values are not limits, but merely calculated emission rates that go into a VOC cap for all sources at the site covered by the permit, with the cap being the only actual limit

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[56] Tr. at 354:18-356:4 (Olson on direct); FHR EX. 27 (excerpt from document on EPA website).
[57] FHR EX. 1 (Taylor pre-filed), 24:17-18; Tr. at 20:15-21:8 (Kirchner on cross); Tr. at 343:1-347:22 (Olson on direct).
[58] *Id.*
[59] *Id.*
[60] FHR EX. 1 (Taylor pre-filed), 24:14-24; FHR EX. 11 (Kirchner pre-filed), 20:9-14; FHR EX. 18 (Olson pre-filed), 9:8-15; Tr. at 20:15-21:8 (Kirchner on cross); Tr. at 49:20-50:8 (Olson on re-direct); Tr. at 343:1-347:22 (Olson on direct).
[61] FHR EX. 12 (Summary of Emission Rate Cap Changes).

on VOC emissions.[62] For some perspective on the relative magnitude of the Heaters' VOC emissions, consider that the cap on VOC emissions from all sources at the site covered by the permit is 3,498.00 lb/hr and 2,211.08 ton/year.[63] On an annual basis, therefore, VOC emissions from the Heaters represent only about 0.6% of the site-wide cap.

FHR's monthly cap compliance calculations demonstrate that actual site-wide VOC emissions are equal to about half the VOC cap.[64] Because VOC emissions from the Heaters are such a small percentage of the site-wide VOC cap (approximately 0.6%) and because there is so much extra space in the cap as demonstrated by the monthly calculations, even if FHR had underestimated VOC emissions from the Heaters by a factor of ten in calculating the updated cap contributions, the cap, which is the only actual limit on VOC emissions,[65] would still not be exceeded.[66]

However, as with CO and PM/PM_{10}, there are reasons to be confident that FHR did not underestimate VOC emissions from the Heaters at all. The same conservative assumptions about firing rates were made,[67] and the same 9% factor was added to the calculated cap contributions.[68] And, again, FHR's CO stack test and CO CEMS data show that the Heaters are achieving complete combustion, therefore establishing that the Heaters' PM/PM_{10} and VOC emission rates are similarly much lower than the updated emission factors.[69]

On the subject of FHR's use of AP-42 factors, CFEJ's only witness, Irvin Bilsky, testified that the first question posed in the Commission's Interim Order should be answered in

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[62] Tr. at 19:20-20:5 (Kirchner on cross); Tr. at 27:5-17 (Taylor on re-direct); Tr. at 320:11-19 (Olson on direct).
[63] FHR EX. 8 (draft permit), p. 58 of 71.
[64] Tr. at 306:16-21 (Taylor on direct).
[65] Tr. at 320:11-19 (Olson on direct).
[66] Tr. at 307:4-7 (Taylor on direct).
[67] Tr. at 321:5-323:8 (Olson on direct).
[68] FHR EX. 11 (Kirchner pre-filed), 13:8-14; Tr. at 20:11-14 (Kirchner on cross).
[69] FHR EX. 1 (Taylor pre-filed), 24:14-24; FHR EX. 11 (Kirchner pre-filed), 20:9-14; FHR EX. 18 (Olson pre-filed), 9:8-15; Tr. at 20:15-21:8 (Kirchner on cross); Tr. at 49:20-50:8 (Olson on re-direct); Tr. at 343:1-347:22 (Olson on direct).

the negative because, as is plainly indicated in the Introduction to AP-42, and as acknowledged by all witnesses, an inherent characteristic of AP-42 factors is that they are based on averages of data collected by EPA. Therefore, Mr. Bilsky suggested, the actual PM/PM_{10} and VOC emission rates could be higher than what FHR calculated using the AP-42 factors.

There are a number of points to be made about Mr. Bilsky's testimony, but perhaps the best place to start is by observing that his ultimate point, that actual emission rates may be higher than as calculated using AP-42, is wrong. As explained above, CO data shows that the Heaters are achieving complete or near complete combustion, and therefore the Heaters are emitting little, if any, of the products of *incomplete* combustion, VOC and PM/PM_{10}.[70] Mr. Bilsky identified no characteristics of these specific Heaters that would lead one to believe that they emit VOC or PM/PM_{10} at higher-than-average rates, and all available emissions data shows that they do not because they are achieving complete or near complete combustion. There is simply no reason to believe that FHR underestimated VOC or PM/PM_{10} emission rates in calculating the cap contributions for the Heaters.

Second, Mr. Bilsky failed to account for the flexible nature of FHR's air permit. His premise is based primarily on a statement from the AP-42 Introduction in which EPA stated that use of AP-42 factors "as source-specific limits ... is not recommended."[71] However, FHR did not use the factors to develop any "source-specific limits"—it only used them to estimate emissions for the purpose of calculating a site-wide cap,[72] of which emissions from the Heaters

[70] FHR EX. 1 (Taylor pre-filed), 24:14-24; FHR EX. 11 (Kirchner pre-filed), 20:9-14; FHR EX. 18 (Olson pre-filed), 9:8-15; Tr. at 20:11-14 (Kirchner on cross); Tr. at 49:20-50:8 (Olson on re-direct); Tr. at 343:1-347:22 (Olson on direct).
[71] CFEJ EX. 2 (AP-42 Introduction), p. 2.
[72] Tr. at 45:22-13 (Olson on re-direct); Tr. at 19:20-20:5 (Kirchner on cross); Tr. at 27:5-17 (Taylor on re-direct); Tr. at 320:11-19 (Olson on direct).

only represent a very small percentage (3.7% in the case of PM/PM_{10} and 0.6% in the case of VOC).[73] The disclaimer in the AP-42 Introduction, therefore, does not even apply.[74]

Third, even if the disclaimer did apply, it would not preclude FHR's use of AP-42 factors to calculate emissions from the Heaters. As TCEQ permit engineer Ozden Tamer explained, the AP-42 Introduction simply explains the pros and cons of using the factors, and, in fact, acknowledges that, despite their limitations, they may be the best approach for calculating emissions.[75] The same or similar disclaimer language has been present in the AP-42 Introduction since it was first published approximately 40 years ago.[76] During this entire time, the author of that language, EPA, has been aware that permitting authorities such as TCEQ routinely allow air permit applicants to rely on AP-42 factors to calculate emissions.[77] According to the recollection of ex-TCEQ employee Karen Olson, who was the senior staff responsible for negotiations with EPA Region 6 regarding EPA's oversight of TCEQ's air permitting program, EPA never once criticized, critiqued or questioned this practice at TCEQ.[78] In fact, EPA has reviewed and commented on hundreds of air permit applications without *ever* objecting to the use of AP-42 factors to calculate emission rates.[79] For a specific example, consider that EPA recently reviewed a permit amendment application in which FHR used the same AP-42 factors for heaters used in the pending application, and despite making "quite a number of comments" on the application, EPA did not object in any way to FHR's use of AP-42 factors.[80]

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[73] FHR EX. 12 (Summary of Emission Rate Cap Changes) and EX. 8 (April 18, 2007 draft permit), pp. 56 & 58 of 71.
[74] Tr. at 45:22-13 (Olson on re-direct).
[75] Tr. at 260:21-261:10 (Tamer on cross).
[76] Tr. at 357:7-12 (Olson on direct).
[77] *Id.* at 357:13-358:18.
[78] *Id.*
[79] Tr. at 229:1-4 (Kirchner on re-direct); Tr. at 43:20-44:21 (Olson on re-direct).
[80] Tr. at 298:11-299:24 (Taylor on direct).

Ms. Olson, who has thirty years of experience in the field of air permitting,[81] testified that Mr. Bilsky was the very first person she has known to suggest that, based on the disclaimer in the AP-42 Introduction, applicants should not use AP-42 factors to calculate emission rates.[82] And even though Mr. Bilsky suggested that position, it appears that he, himself, does not actually agree with it. As an Agency reviewer, Mr. Bilsky signed off on hundreds of permit applications that used AP-42 factors to calculate emissions.[83] As a consultant, Mr. Bilsky has continued to use AP-42 factors, including the very same factors used by FHR to calculate emissions from Heaters,[84] to calculate emissions in "over half" of the air permit applications he has prepared,[85] and he testified that he will continue to do so in the future.[86] While Mr. Bilsky, at one point, attempted to distinguish a particular example as being an "insignificant source,"[87] he later testified that he has indiscriminately used AP-42 factors for both smaller and larger sources when "other factors were not available,"[88] which is precisely the case with respect to the Heaters.[89] And note that, unlike those in FHR's application, the purpose of the emission calculations approved and performed by Mr. Bilsky has been not to estimate contributions to a flexible cap, but to set source-specific limits,[90] which, according to Mr. Bilsky, is the "least supportable" context in which to use AP-42.[91]

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[81] FHR EX. 18 (Olson pre-filed), 2:6-3:11.
[82] Tr. at 358:20-25 (Olson on direct).
[83] Tr. 62:7-63:2 (Bilsky on cross).
[84] *Id.* at 70:14-25, 76:11-20, 110:20-111:8.
[85] *Id.* at 66:8-12, 116:17-20.
[86] *Id.* at 117:23-24.
[87] *Id.* at 71:1-17.
[88] *Id.* at 85:3-7, 86:2-8.
[89] FHR EX. 18 (Olson pre-filed), 8:20-21; Tr. at 18:12-16, 21:21-22 (Kirchner on cross).
[90] Tr. at 63:16-19, 110:20-24 (Bilsky on cross).
[91] *Id.* at 113:25-116:2.

Most significantly, Mr. Bilsky testified that, despite his stated concerns about AP-42 factors, FHR's use of them should not preclude issuance of the amended permit.[92] It appears that Mr. Bilsky's testimony on this subject is, therefore, based on a mistaken premise that, in phrasing the Interim Order the way it did, the Commission was attempting to hold FHR to a different standard than that which applies to other air permit applicants.[93] But, of course, there is no practical or legal basis for doing so, and FHR's application need only meet the Commission's requirements to be granted, which Mr. Bilsky agrees it does. Therefore, putting all other deficiencies aside, Mr. Bilsky's testimony can be disregarded for the sole reason that it is, ultimately, of no import.

Finally, consider the practical effects of disallowing FHR's reliance on AP-42. The alternative suggested by Mr. Bilsky would be to conduct pollutant-specific testing of PM/PM_{10} and VOC at each of the Heaters. But these emissions are widely accepted as being insignificant, and neither TCEQ nor any other regulatory agency requires testing of them.[94] In fact, rules promulgated by EPA setting forth new source performance standards for qualifying gas-fired combustion devices do not even include limits on emissions of PM/PM_{10} or VOC from such sources, much less a requirement to test emissions of these constituents.[95] Mr. Kirchner testified that he has never even heard of any testing of those types of emissions.[96] And while Mr. Taylor has had some experience with testing for PM/PM_{10} emissions from a gas-fired combustion device, he testified that the methods available for such testing are very unreliable and expensive.[97] But regardless of whether such testing could be done and at what cost, it is simply

[92] *Id.* at 111:9-112:9, 148:21-149:3.
[93] *Id.* at 111:15-24.
[94] FHR EX. 1 (Taylor pre-filed), 24:8-10.
[95] *Id.* at 24:10-13.
[96] Tr. at 22:5-15 (Kirchner on cross).
[97] Tr. at 309:10-311:3 (Taylor on direct).

unnecessary in this case because FHR has already tested, and continues to monitor a surrogate for VOC and PM/PM_{10} emissions, CO.[98] Ms. Olson testified that this approach is consistent with TCEQ practice in this area,[99] and TCEQ permit engineer Ozden Tamer agreed.[100] In fact, Ms. Tamer testified that, in light of FHR's ongoing monitoring of a surrogate, and the fact that no actual increases in emissions from the Heaters are being proposed, TCEQ would "never, never ask for testing for VOC or PM" in this context.[101]

Note also that Mr. Bilsky's concern about AP-42 being based on averages of data is not specific to the particular factors used by FHR, but rather extends to all AP-42 factors.[102] If continued reliance on AP-42 factors were disallowed, the impacts on TCEQ's ability to process permit applications, and for businesses to obtain authorizations for the construction and expansion of facilities, would be severe, with potentially significant adverse consequences on the Texas economy.[103] But none of this is necessary given that no witness presented any credible argument as to why FHR's use of emission factors in calculating emissions from the Heaters was improper.

III.
CALCULATION OF SHORT-TERM AMMONIA CAP CONTRIBUTIONS FOR PIPING AND OTHER FUGITIVE COMPONENTS ASSOCIATED WITH THE SNCR SYSTEM INSTALLED AT THE FCCU CO BOILER

A. FCCU CO Boiler SNCR System

One of six projects addressed by the Application is the installation of the SNCR system, a post-combustion NO_X control technology, at the FCCU CO Boiler/Scrubber.[104] The SNCR process reduces NO_X emissions in the FCCU CO Boiler flue gas by injecting aqueous ammonia,

[98] Tr. at 345:23-347:23 (Olson on direct).
[99] *Id.* at 345:10-23.
[100] Tr. at 246:8-247:3, 251:19-252:14 (Tamer on cross).
[101] *Id.* at 264:12-20.
[102] Tr. at 67:7-22 (Bilsky on cross).
[103] Tr. at 44:22-45:11 (Taylor on re-direct); Tr. at 267:9-268:1 (Tamer on cross).
[104] FHR EX. 1 (Taylor pre-filed), 10:12-20, 16:5-7.

steam and possibly hydrogen directly into the combustion area of the Boiler.[105] A side effect sometimes associated with the operation of an SNCR system is the emission of unreacted ammonia into the atmosphere, a result of a phenomenon referred to as "ammonia slip."[106] In the case of the FCCU CO Boiler, any ammonia slip emissions associated with the use of SNCR are not emitted directly into the atmosphere, but are instead routed through the scrubber that controls the CO Boiler stack emissions.[107] Because ammonia is highly soluble, the scrubber removes virtually all ammonia in the Boiler stack gas.[108] In addition to the ammonia slip emissions, the SNCR system also has the potential to result in a small amount of fugitive ammonia emissions as a result of the piping, connectors, valves and other components associated with the SNCR system itself.[109]

B. Establishment of Ammonia Cap

Because of the installation of the SNCR system on the FCCU CO Boiler and the associated potential for ammonia emissions, FHR requested the establishment of a new emissions rate cap for ammonia.[110] The emissions "sources" contributing to this new cap are (1) the FCCU CO Boiler/Scrubber though which the ammonia slip emissions are routed and (2) the SNCR system piping, connectors, valves and other components that are the potential source of fugitive ammonia emissions ("FCCU Fugitives").[111] The following table shows the total ammonia cap as well as the cap contributions of each of the sources.[112]

[105] *Id.* at 16:5-7; Tr. at 274:17-19 (Taylor on direct).
[106] FHR EX. 1 (Taylor pre-filed), 16:7-9; Tr. at 274:19-23 (Taylor on direct).
[107] FHR EX. 1 (Taylor pre-filed), 16:9-11; Tr. at 274:21-25 (Taylor on direct).
[108] FHR EX. 1 (Taylor pre-filed), 16:9-11, 29:14-17; Tr. at 276:15-18 (Taylor on direct)
[109] FHR EX. 1 (Taylor pre-filed), 16:11-14; Tr. at 270:15-19 (Taylor on direct).
[110] FHR EX. 11 (Kirchner pre-filed), 12:4-7.
[111] FHR EX. 8 (April 18, 2007 draft permit), pp. 64-65 of 71; Tr. at 273:11-15 (Taylor on direct).
[112] FHR EX. 12 (Summary of Emission Rate Cap Changes); FHR EX. 8 (April 18, 2007 draft permit), pp. 64-65 of 71; Tr. at 273:23-274:12 (Taylor on direct).

Source Name	lb/hr	ton/yr
FCCU CO Boiler/Scrubber	11.88	31.21
FCCU Fugitives	0.05	0.22
Total Ammonia Cap	11.93	31.43

As the above emission rate cap contribution numbers demonstrate, the vast majority (more than 99%) of the total ammonia cap reflects the calculated cap contribution from the FCCU CO Boiler/Scrubber. The FCCU Fugitives contribute less than 1% to the total ammonia cap.

Given the nature of the FCCU Boiler, it was difficult to predict how the SNCR technology would perform prior to its installation.[113] Specifically, because CO concentrations can be significant in certain combustion zone areas of the FCCU CO Boiler (in particular the areas where the ammonia must be injected) and because ammonia often reacts with CO before it reacts with NO_X, it was thought that relatively high ammonia injection rates might have been necessary to achieve the overall desired NO_X reduction.[114] As a result, FHR engineers felt that utilization of SNCR on the FCCU CO Boiler might have resulted in more variable and/or greater ammonia slip than typically seen with other SNCR installations, which is in the range of 10 ppm.[115] Accordingly, the lb/hour ammonia cap contributions associated with the ammonia slip emissions were calculated based on an expected short-term ammonia concentration of 25 parts per million by volume ("ppmv") in the FCCU CO Boiler exhaust, while the ton/year ammonia cap contributions were based on an expected long-term concentration of 15 ppmv.[116] Notably, because the FCCU CO Boiler is equipped with a scrubber that significantly reduces ammonia slip emissions, the rates used to calculate the FCCU CO Boiler/Scrubber cap contributions were extremely conservative even given the potential for more variable and/or greater ammonia slip

[113] FHR EX. 11 (Kirchner pre-filed), 21:20-22:1.
[114] *Id.* at 22:2-5.
[115] *Id.* at 22:5-8.
[116] *Id.* at 22:8-10; Tr. at 275:6-10 (Taylor on direct).

emissions upstream of the scrubber.[117] Additional layers of conservatism were included by assuming a worst-case boiler exhaust flow and adding a 9 % "insignificant emission factor" to the calculated cap contributions as provided for by 30 TEX. ADMIN. CODE § 116.716.[118]

The cap contributions for the FCCU Fugitives were calculated using refinery average emission factors taken from EPA's "Protocol for Equipment Leak Emission Estimates" for the types of components that were being added.[119] Specifically, the emission factors for each component type (e.g., valve and flanges) were multiplied by the number of each component type associated with the SNCR system.[120] Consistent with TCEQ guidance,[121] control efficiencies were applied for each component type to account for the fact that FHR monitors the SNCR system components using an audio, visual, and olfactory ("AVO") monitoring program.[122] After the total emissions for all fugitive components was calculated, they were adjusted upward by 9% as provided for by 30 TEX. ADMIN. CODE § 116.716 to arrive at the cap contribution.[123]

C. Actual Ammonia Emissions

As explained by Mr. Taylor, by measuring the concentration of ammonia captured in the scrubber water, FHR has been able to back-calculate the concentration of ammonia in the uncontrolled FCCU CO Boiler stack gases using a mass balance approach, and from that, calculate the concentration of ammonia in the controlled stack gases.[124] Specifically, between April 20, 2007 and December 31, 2008, FHR has periodically sampled the concentration of ammonia captured in the scrubber water and has used this data to calculate ammonia

[117] FHR EX. 11 (Kirchner pre-filed), 22:11-12.
[118] *Id.* at 21:7-9; Tr. at 277:23-278:4 (Taylor on direct).
[119] FHR EX. 11 (Kirchner pre-filed), 24:9-13.
[120] FHR EX. 2 (permit amendment application), pp. 39-41 of 80.
[121] Tr. at 125:10-20, 128:10-11, 157:13-17 (Bilsky on cross); Tr. at 332:3-6 (Olson on direct).
[122] FHR EX. 2 (Permit Amendment Application), 39-41.
[123] FHR EX. 11 (Kirchner pre-filed), 23:14-17.
[124] FHR EX. 1 (Taylor pre-filed), 29:17-20; Tr. at 275:17-22 (Taylor on direct).

concentrations in the stack gases.[125] Although it is reasonable to assume that the scrubber removes 99% of the ammonia from the stack gases, Mr. Taylor performed calculations assuming an extremely conservative scrubber efficiency of 90%.[126] Based on even these very conservative calculations, ammonia emissions downstream of the scrubber are virtually non-existent due to there being little to no ammonia slip.[127] In fact, the very highest calculated post-scrubber ammonia concentration, assuming the extremely conservative scrubbing efficiency of 90%, is approximately 13 ppm, which is lower than both the 25 ppm short-term and 15 ppm long-term emission factors used to calculate the ammonia cap contributions from the FCCU CO Boiler/Scrubber.[128] Accordingly, the sampling performed by FHR demonstrates that actual ammonia slip emissions are "well, well below" the proposed cap contributions.[129]

Although fugitive ammonia emissions from the SNCR system piping, connectors, valves and other components have not been measured, Mr. Taylor's review of the SNCR system leak history indicates that the proposed cap contributions for these components are also conservative. As explained by Mr. Taylor, each day FHR operators conduct AVO monitoring of the SNCR system to check for gaseous and liquid ammonia leaks.[130] Given the nature of the monitoring, the distinct odor of ammonia, and the ability to visually detect liquid leaks, this monitoring is extremely effective in detecting any ammonia leaks that might occur.[131] This monitoring along with Mr. Taylor's review of work order and emission release documentation dating back to November 2006 indicate that there have been no fugitive ammonia leaks over the more than two

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[125] FHR EX. 1 (Taylor pre-filed), 29:20-30:2; Tr. at 275:17-22 (Taylor on direct); FHR EX. 5 (results of ammonia analysis).
[126] FHR EX. 1 (Taylor pre-filed), 31:10-12, 32:3-5; Tr. at 276:11-277:2 (Taylor on direct).
[127] FHR EX. 1 (Taylor pre-filed), 32:15; Tr. at 277:6-7 (Taylor on direct).
[128] FHR EX. 1 (Taylor pre-filed), at 33:1-4; Tr. at 276:7-10, 277:3-7 (Taylor on direct).
[129] Tr. at 278:9-11 (Taylor on direct).
[130] Tr. at 271:18-272:6 (Taylor on direct).
[131] *Id.* at 272:7-14.

years of operation of the SNCR system.[132] As explained by Ms. Olson, the average or composite fugitive emission factors used by FHR to calculate the proposed cap contributions are based on the assumption that a certain percentage of the fugitive components leak.[133] As she also explained, this holds true even when one applies the monitoring-based control efficiencies as did FHR.[134] Therefore, the fact that there have been no leaks associated with the SNCR system demonstrates that actual emissions from the FCCU Fugitives are less than the proposed cap contributions.[135]

D. Calculation of Short-Term Ammonia Cap Contributions for Piping and Other Fugitive Components

As explained above, FHR calculated both the short-term and long-term ammonia cap contributions for the FCCU Fugitives using refinery average emission factors taken from EPA's "Protocol for Equipment Leak Emission Estimates" and by applying various control efficiencies for each component type to account for the fact that FHR utilizes an AVO monitoring program to detect and repair any leaks that might occur.[136] Although Ms. Olson and Mr. Bilsky both agree that the application of these control efficiencies is consistent with TCEQ guidance and practice,[137] Mr. Bilsky claims that using the control efficiencies to calculate the short-term cap contributions was, nevertheless, improper.[138]

Here again, there are a number of points to be made about Mr. Bilsky's testimony, even in addition to the fact that his position is clearly contrary to TCEQ guidance and practice. First, and possibly most revealing, Mr. Bilsky's recommended departure from TCEQ guidance and

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[132] *Id.* at 272:15-25.
[133] Tr. at 328:17-329:9 (Olson on direct).
[134] Tr. at 365:14-367:8 (Olson on cross).
[135] Tr. at 273:5 (Taylor on direct).
[136] FHR EX. 2 (permit amendment application), pp. 39-41 of 80.
[137] Tr. at 125:10-126:19, 128:10-11, 129:1-9 & 17-24, 157:10-17 (Bilsky on cross); Tr. at 331:2-10, 332:3-6, & 333:24-334:6 (Olson on direct).
[138] CFEJ EX. 1 (Bilsky pre-filed), 15:15-16, 16:13-14.

practice can be explained by the fact that he simply does not have a proper understanding of the meaning of the control efficiencies utilized by FHR or the significance of their use.[139] In fact, Mr. Bilsky testified that the control efficiencies used by FHR and referenced in TCEQ guidance are not really control efficiencies at all.[140] Instead, he stated that the control efficiencies actually represent "a percentage of [the] number of components that are leaking" or a "percentage of leakers factor."[141] Ms. Olson, who worked on both the development of the fugitive emission factors and related TCEQ guidance[142] and who, unlike Mr. Bilsky, was able to describe how the control efficiencies were derived,[143] explained that the control efficiencies actually reflect an overall reduction in emissions from the combination of leaking and non-leaking components, not simply a reduction in the number or percentage of leaking components as Mr. Bilsky contends.[144] She also explained that, contrary to Mr. Bilsky's claim, the use of the control efficiencies does not result in a limit on the number certain types of components (e.g., pumps) that can be leaking at any one time.[145] Accordingly, when asked if there is any merit to Mr. Bilsky's contention that FHR improperly calculated the short-term fugitive emission rates, Ms. Olson testified: "Absolutely not."[146]

Second, even assuming, arguendo, that Mr. Bilsky is correct that FHR underestimated the FCCU Fugitives hourly cap contributions, he himself testified that including point source emissions under the cap along with the fugitives could resolve the issue.[147] While it is clearly the

[139] Tr. at 336:16-22 (Olson on direct).
[140] Tr. at 126:8-16 (Bilsky on cross).
[141] *Id.* at 189:23-24, 190:9-11, 219:19-22.
[142] Tr. at 330:7-23 (Olson on direct).
[143] *Id.* at 332:12-333:17; Tr. at 365:14-367:8 (Olson on cross); FHR EX. 24 (Olson demonstrative).
[144] Tr. at 336:8-15 (Olson on direct); FHR EX. 24 (Olson demonstrative).
[145] *Id.* at 335:22-336:15; Tr. at 365:14-19 (Olson on cross).
[146] Tr. at 337:11 (Olson on direct).
[147] FHR EX. 23 (Excerpt from Bilsky deposition), 141:4-14; Tr. at 130:9-20 (Bilsky on cross).

case that point source emissions are included under the ammonia cap,[148] Mr. Bilsky apparently did not realize this[149] until he was cross-examined at the hearing and reluctantly acknowledged that the ammonia cap includes contributions from both the FCCU Fugitives and the FCCU CO Boiler/Scrubber.[150] Additionally, as explained above in Section III.C, actual short-term ammonia emissions from the CO Boiler/Scrubber, which accounts for more than 99% of the total ammonia cap, are such that there is more than enough headroom in the total ammonia cap to account for any possible increase in emissions from the FCCU Fugitives. This is especially true given that Mr. Bilsky himself contends that it would have been appropriate for FHR to reduce the fugitive emissions by 90 to 94%,[151] just not by 93 to 97%, a change that would, as Mr. Taylor explained, result in a "negligible increase" in the short-term fugitive ammonia emissions, meaning that actual emissions would remain "well, well below" the total cap.[152]

Third, while Mr. Bilsky contends that FHR underestimated the short-term ammonia cap contributions for the FCCU Fugitives as a result of its application of control efficiencies, evidence introduced at the hearing revealed that the calculation methodology used by Mr. Bilsky to calculate fugitive ammonia emissions in a 2004 air permit application,[153] while it did not employ control efficiencies, would have resulted in significantly lower emissions, both on a short-term and long-term basis.[154] In fact, as Ms. Olson explained, "the Flint Hills methodology resulted in emission estimates almost four times higher than the Bilsky method,"[155] thus providing additional evidence that Mr. Bilsky's contention that FHR underestimated the short-term cap contribution for the FCCU Fugitives is incorrect.

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[148] FHR EX. 8 (April 18, 2007 draft permit), pp. 64-65 of 71; Tr. at 273:11-15 (Taylor on direct).
[149] FHR EX. 23 (Excerpt from Bilsky deposition), 141:9-11; Tr. at 130:8-9 (Bilsky on cross).
[150] Tr. at 132:22-23, 133:16-24, 140:14-24, 141:22-23 (Bilsky on cross).
[151] Tr. at 192:15-17 (Bilsky on redirect); Tr. at 220:15-20 (Bilsky on cross).
[152] Tr. at 279:9-14 (Taylor on direct).
[153] FHR EX. 22 (South Texas Chlorine, Inc. permit renewal application).
[154] FHR EX. 25 (Bilsky methodology vs. FHR methodology); Tr. at 341:21-23 (Olson on direct).
[155] Tr. at 341:21-23 (Olson on direct).

IV.
REVISION OF DRAFT PERMIT SPECIAL CONDITION NO. 3 TO REQUIRE A REFERENCE TO QUANTIFICATION OF PM EMISSIONS WHENEVER VISIBLE EMISSIONS OCCUR, EXCEPT FOR PERIODS OF STARTUP AND SHUTDOWN

CFEJ apparently believes the question raised by this heading is relevant to the second of the two referred issues: "whether the monitoring requirements that are proposed for change in the amendment application or changed in the proposed Special Conditions or MAERT, as applicable, are sufficient to determine compliance with the permit limits."[156] However, Special Condition No. 3[157] appears not in the Monitoring section[158] but in the General Process Requirements section of the permit,[159] and contains no "monitoring requirement." It instead sets forth a prohibition (against visible emissions exceeding five minutes over any two-hour period), and then specifies the procedure to be used on those occasions when a TCEQ representative requests a demonstration of compliance with that prohibition. Note also that the only substantive change to Special Condition No. 3 being proposed is the addition of the West Crude Heaters to the list of sources from which visible emissions are prohibited.

Mr. Bilsky's pre-filed testimony contained no discussion of Special Condition No. 3. It was not until counsel for CFEJ's live re-direct examination of Mr. Bilsky that he attempted to elicit testimony concerning Special Condition No. 3, and when he did, counsel for FHR objected.[160] The ALJ initially allowed some questioning on this topic because, during cross-examination, there had been discussion of Mr. Bilsky's use of opacity as a surrogate for

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[156] The Commission's September 26, 2008 Interim Order. The other referred issue is "whether Flint Hills Resources' use of emission factors with regard to the changes requested in the amendment application or the changes in the proposed Special Conditions and MAERT is adequate to assure compliance with all related applicable requirements and limits."
[157] FHR EX. 8 (April 18, 2007 draft permit), p. 18 of 71.
[158] *Id.* at pp. 40-46 of 71.
[159] *Id.* at pp. 17-20 of 71.
[160] Tr. at 196:11-203:22 (Bilsky on cross).

particulate emissions.[161] However, once it became clear that counsel for CFEJ and Mr. Bilsky were attempting to make an entirely new point concerning the previously un-discussed Special Condition No. 3, the ALJ agreed that the line of questioning was beyond the scope of the hearing, and instructed counsel for CFEJ to move on to another subject.[162] Having established to the ALJ's apparent satisfaction that criticisms of Special Condition No. 3 were outside the bounds of relevance, counsel for FHR did not re-visit the subject on re-cross. FHR maintains that this topic is irrelevant, and on that basis declines to further brief it.

V.
REVISION OF DRAFT PERMIT SPECIAL CONDITION NO. 4 TO DELETE THE AUTHORIZATION OF 100% NATURAL GAS FIRING IN THE HEATERS OR REVISION OF THE HEATER EMISSION RATE CALCULATIONS FOR CAP CONTRIBUTIONS TO INCLUDE 100% NATURAL GAS FIRING CASE

The questions raised in this heading are also irrelevant. The first question, which is whether Special Condition No. 4 should be revised to disallow use of 100% natural gas at the Heaters, is irrelevant because Special Condition No. 4 contains no "monitoring requirement"[163]—instead, it sets limits on the types of fuel that can be used at certain sources.[164] The second question, which is whether FHR should have included a 100% natural gas firing case in its emission calculations for the Heaters, is irrelevant because it is not tailored to the question posed by the Commission, which is specific to FHR's "use of emission factors."[165]

However, unlike the preceding heading, the ALJ has not yet had occasion to rule on the relevance of this topic heading. FHR will, therefore, without waiving its objection to its

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[161] *Id.* at 198:2-13.
[162] *Id.* at 201:17-25, 203:12-21.
[163] Commission's September 26, 2008 Interim Order, Issue #2: "Whether the monitoring requirements that are proposed for change in the amendment application or changed in the proposed Special Conditions or MAERT, as applicable, are sufficient to determine compliance with the permit limits."
[164] FHR EX. 8 (April 18, 2007 draft permit), p. 19 of 71.
[165] Commission's September 26, 2008 Interim Order, Issue #1: "Whether Flint Hills Resources' use of emission factors with regard to the changes requested in the amendment application or the changes in the proposed Special Conditions and MAERT is adequate to assure compliance with all related applicable requirements and limits."

relevance, briefly address what it expects to be CFEJ's argument, which is that, by adjusting the AP-42 factor associated with the use of natural gas to account for the lower heating value of its refinery fuel gas, FHR has underestimated emissions associated with burning straight natural gas at the Heaters.

First, FHR does not burn straight natural gas at the Heaters—instead, it burns a gas that is actually a mixture of gases, only one component of which is natural gas.[166] In fact, the physical configuration of most of the heaters would preclude FHR from burning straight natural gas even if it wanted to.[167] Therefore, it was perfectly appropriate for FHR to, in accordance with the instructions in AP-42, take the factor associated with natural gas and adjust it downward to account for the lower heating value associated with the type of gas it actually uses.[168]

Mr. Bilsky testified that there was nothing wrong with the way FHR calculated emissions from the Heaters that would preclude issuance of the amended permit.[169] It appears that he was thrown off, however, by the fact that, even though FHR does not burn straight natural gas, Special Condition No. 4 would allow FHR to do so.[170] But, because FHR's air permit is a flexible permit, and because TCEQ's rules allow holders of flexible permits to make changes in feedstock without a permit amendment or alteration,[171] the West Refinery would be authorized to burn natural gas even if Special Condition No. 4 contained no mention of it. Therefore, Special Condition No. 4 does not expand, but *limits* the types of fuels FHR can burn, and, even if it were a relevant consideration, there would be no reason to remove a limit from the permit.

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[166] Tr. at 300:24-302:12 (Taylor on direct).
[167] *Id.* at 300:13-23.
[168] *Id.* at 300:24-302:12.
[169] Tr. at 111:25-112:9 (Bilsky on cross).
[170] *Id.* at 159:11-163:2.
[171] 30 TEX. ADMIN. CODE § 116.721(c)(2).

Additionally, note that the downward adjustment from the factor associated with natural gas was only approximately 10%.[172] This entire downward adjustment, even if it had been improperly taken, is almost entirely offset by the 9% "insignificant emission factor" *added* by FHR to its calculated cap contributions for the Heaters.[173] Moreover, as Ms. Olson testified, because there is less hydrocarbon content in the type of gas burned by FHR versus natural gas, the CO, PM/PM_{10} and VOC emissions from burning that type of as is also less, which means that, if anything, FHR's use of the emission factor associated with burning natural gas as the basis for its emission calculations *over*estimated actual emissions.[174]

VI.
ALLOCATION OF TRANSCRIPT COSTS

FHR has been assessed transcription costs in the amount of $2,325.50 for the pre-hearing conference and evidentiary hearing in this matter. Pursuant to 30 TEX. ADMIN. CODE § 80.23(d), when determining how to allocated transcription costs among the parties, the Commission must consider a variety of factors, including "any . . . factor which is relevant to a just and reasonable assessment of costs."[175] As explained above in Section I.C, in recognition of the fact that the Permit authorizes hundreds of emission sources and to avoid the unnecessary expenditure of resources litigating aspects of the Permit that are not affected by the Application, the Commission deliberately limited this proceeding to two discrete issues. Nevertheless, as its counsel recognized during the preliminary hearing ("I think that's true, that Mr. Hunt did go

[172] FHR EX. 2 (permit amendment application), pp. 30, 37 & 44 of 80; Tr. at 160:16-161:22 (Bilsky on cross). Note that Mr. Bilsky's transcribed statement at 161:19, "they scaled it down roughly 90 percent," appears to be either a typo in the transcript or a slight error in Mr. Bilsky's wording. As can be seen from the numbers in the application, which are referenced by Mr. Bilsky in the surrounding lines of testimony, the word, "to," should appear prior to "90 percent."
[173] FHR EX. 11 (Kirchner pre-filed), 8-14; Tr. at 20:11-14 (Kirchner on cross).
[174] Tr. at 348:23-350:14 (Olson on direct).
[175] 30 TEX. ADMIN. CODE § 80.23(d)(1)(G).

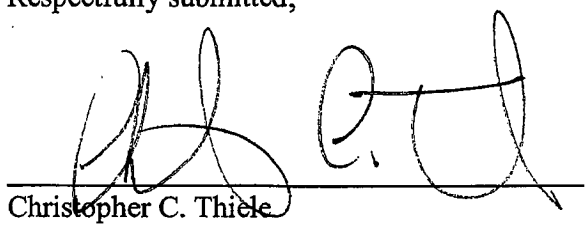
beyond the matters addressed in the interim order . . ."),[176] CFEJ pre-filed a substantial amount of testimony that strayed from these issues. While this testimony was ultimately ruled inadmissible and CFEJ ultimately decided not to present the witness at the hearing, CFEJ's pre-filing of this clearly irrelevant testimony caused FHR to expend a significant amount of money to review and prepare objections to the pre-filed testimony, depose the witness (transcription costs alone were $1,297.80), and prepare for cross-examination of the witness, unnecessary costs that combined far exceed the transcription costs for the pre-hearing conference and evidentiary hearing. Accordingly, FHR respectfully requests that the ALJ allocate all transcription costs for the pre-hearing conference and evidentiary hearing in this matter to CFEJ.

VII.
CONCLUSION

For the foregoing reasons, FHR respectfully requests that the ALJ recommend that: 1) FHR's use of emission factors with regard to changes requested in the amendment application or the changes in the proposed permit special conditions and MAERT is adequate to assure compliance with all related applicable requirements and limits; and 2) the monitoring requirements that are proposed for change in the amendment application or changed in the permit special conditions or MAERT, as applicable, are sufficient to determine compliance with permit limits. Accordingly, FHR further requests that the ALJ recommend issuance of the amendment of Flexible Permit No. 8803A/PSD-TX-41348.

[176] Preliminary Hearing Tr. at 15:23-25.

Respectfully submitted,



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CERTIFICATE OF SERVICE

I hereby certify that, on this the 12th day of May 2009, a true and correct copy of the foregoing document has been served via hand delivery, facsimile, electronic mail, overnight mail, U.S. Mail, and/or Certified Mail, Return Receipt Requested, on the parties whose names appear below.

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ATTACHMENT B

FHR's Response to Closing Arguments

SOAH DOCKET NO. 582-09-0651
TCEQ DOCKET NO. 2008-0293-AIR

APPLICATION OF FLINT HILLS RESOURCES, LP FOR AN AMENDMENT TO AIR QUALITY PERMIT NUMBERS 8803A AND PSD-TX-413M8 FOR THE WEST REFINERY IN NUECES COUNTY, TEXAS	§	**BEFORE THE STATE OFFICE**
	§	**OF**
	§	**ADMINISTRATIVE HEARINGS**

APPLICANT'S RESPONSE TO CLOSING ARGUMENTS

TO THE HONORABLE ADMINISTRATIVE LAW JUDGE:

COMES NOW Applicant Flint Hills Resources, LP ("Applicant" or "FHR") and files its response to closing arguments in the above-captioned proceeding. Both the Office of Public Interest Counsel ("OPIC") and the Executive Director have argued that all pending issues be resolved in FHR's favor, and that the amended permit be issued. While OPIC and the Executive Director have, in places, emphasized different points and taken slightly differing views of the record testimony, because FHR generally agrees with their arguments, there is no need for FHR to directly respond to their closing arguments. FHR's response, therefore, is limited in scope to responding to Citizens for Environmental Justice's ("CFEJ's") closing argument. FHR will only respond to the specific points made by CFEJ, and will not unduly repeat here the various points made in FHR's closing argument, many of which CFEJ has not addressed.

I.
INTRODUCTION/BACKGROUND

In its Introduction, CFEJ makes a number of assertions reflecting a continuing misunderstanding of how FHR's air permit works, and what this case is about. For example, at the bottom of page 1 CFEJ writes,

> *"Flint Hills makes much of the fact that the permit under consideration is a flexible permit, and has implied that considerations such as source specific emission limitations are not relevant to the analysis presented."*

FHR has not "implied" that source-specific limits are irrelevant—FHR has *affirmatively stated* that, for the pollutants and sources at issue, there *are no* source-specific limits, but only site-wide caps.[1] Therefore, where the Commission has asked "[w]hether Flint Hills Resources' use of emission factors ... is adequate to assure compliance with all related applicable requirements and limits,"[2] the "limits" to which the Commission was referring are the site-wide caps. CFEJ's observation that "Flint Hills has attempted to shift the attention in this permitting process to the overall cap" is not any kind of indictment, but an accurate characterization of FHR's efforts to steer CFEJ's attention back to relevant considerations.

Later in its Introduction, CFEJ resorts to arguing that TCEQ's flexible permit program, in general, is inconsistent with federal law. None of this discussion is supported by any record testimony, or relevant to either of the two limited issues referred by the Commission. FHR, therefore, will not respond to it, other than to note the irony of CFEJ's complaint at the top of page 3, which relates to the 9% upward adjustment conservatively applied by FHR to its calculated cap contributions—if CFEJ's basic concern is that FHR has *under*estimated emissions, why would it complain about the 9% *upward* adjustment? This inconsistency suggests that CFEJ would have been dissatisfied no matter how FHR had calculated its cap contributions.

[1] Tr. at 19:20-20:5 (Kirchner on cross); Tr. at 27:5-17 (Taylor on re-direct); Tr. at 320:11-19 (Olson on direct).
[2] Commission's September 26, 2008 Interim Order.

II.
USE OF UPDATED AP-42 EMISSION FACTORS TO CALCULATE CAP CONTRIBUTIONS FOR THE WEST CRUDE HEATERS AND NO. 2 PAREX HOT OIL HEATER

CFEJ's basic point is that, because AP-42 factors are averages of data, some sources in the world emit at lower rates, and some emit at higher rates. FHR agrees. However, FHR disagrees with CFEJ's hypothesis that the Crude Charger Heater and the Crude Vacuum Heater ("the West Crude Heaters") and the No. 2 Parex Hot Oil Heater (collectively, "the Heaters") could be among the sources that emit at higher-than-average rates. Not only is CFEJ's hypothesis offered as merely that, a hypothesis without evidentiary support, but it was refuted by hard data and the testimony of no less than four witnesses.

Continuous emissions monitoring system ("CEMS") data shows that emissions of carbon monoxide ("CO") from the Heaters are far below the cap contributions calculated using AP-42 factors.[3] Mr. Taylor, Mr. Kirchner, Ms. Olson and Ms. Tamer each testified that this data shows that the Heaters are achieving near complete combustion, and therefore are emitting little, if any, of the products of *incomplete* combustion: CO, particulate matter/particulate matter with a diameter of less than 10 microns ("PM/PM_{10}"), and volatile organic compounds ("VOC").[4] Thus, while it is true that there must exist in the world gas-fired combustion devices that emit at rates higher than the AP-42 factors, four of the five witnesses in the case testified that the Heaters are not among them.[5]

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[3] FHR EX. 1 (Taylor pre-filed), 27:5-29:5; FHR EX. 3 (2007 CEMS data); FHR EX. 4 (2008 CEMS data); Tr. at 282:4-7 (Taylor on direct).

[4] FHR EX. 1 (Taylor pre-filed), 24:14-24; FHR EX. 11 (Kirchner pre-filed), 20:9-14; FHR EX. 18 (Olson pre-filed), 9:8-15; Tr. at 20:11-14 (Kirchner on cross); Tr. at 49:20-50:8 (Olson on re-direct); Tr. at 343:1-347:22 (Olson on direct); Tr. at 246:8-247:3 (Tamer on cross).

[5] FHR EX. 1 (Taylor pre-filed), 24:14-24; FHR EX. 11 (Kirchner pre-filed), 20:9-14; FHR EX. 18 (Olson pre-filed), 9:8-15; Tr. at 20:11-14 (Kirchner on cross); Tr. at 49:20-50:8 (Olson on re-direct); Tr. at 343:1-347:22 (Olson on direct); Tr. at 246:8-247:3 (Tamer on cross).

The only other witness, Mr. Bilsky, testified only to what he perceived to be a lack of an inverse correlation between the Heaters' nitrogen oxide ("NO_x") and CO emissions;[6] however, Mr. Taylor explained that the correlation did not show up because of the way in which the CEMS data was pulled and organized, and that he had observed the inverse correlation in other data.[7] In any case, Mr. Bilsky offered no testimony on whether the Heaters are or are not higher-than-average emitters; therefore, there is no record evidence contradicting Mr. Taylor's, Mr. Kirchner's, Ms. Olson's and Ms. Tamer's testimony on this point, or supporting in any way the notion that these specific Heaters emit the products of incomplete combustion at higher-than-average rates.

CFEJ also makes the general observation that source-specific data is preferable to the use of generic emission factors:

> *"The evidence presented in hearing supports the conclusion that the use of AP-42 Emission Factors and fugitive emissions factors for air pollution emission rate calculations for air permits in Texas has historically been accepted by the TCEQ unless better or more representative emissions data is available for an air contaminant emissions source."*[8]

Again, FHR agrees. If better or more representative emissions data is available for a source, then, by all means, it should be used. But that is not the case with respect to the Heaters. Both Mr. Kirchner and Ms. Olson testified that there are no emission factors more appropriate to use for calculating emissions from the Heaters than those set forth in AP-42.[9] No record evidence contradicts this testimony.

Regarding CFEJ's specific assertion that, while AP-42 factors may be acceptable for calculating long-term, ton-per-year ("tpy") emission rates, they should not be used for

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[6] CFEJ EX. 1 (Bilsky pre-filed), 8:16-9:5.
[7] Tr. at 289:20-296:12 (Taylor on direct).
[8] CFEJ Brief at 4.
[9] FHR EX. 18 (Olson pre-filed), 8:20-21; Tr. at 18:12-16, 21:21-22 (Kirchner on cross).

calculating worst-case short-term, pound-per-hour ("lb/hr") emission rates,[10] note that the CO CEMS data introduced by FHR, which, again, acts as a surrogate for PM/PM_{10} and VOC data,[11] is *hourly* data, and therefore shows complete or near-complete combustion on an *hourly* basis.[12] While there were a few hours over the course of two years in which recorded CO emission rates would have exceeded the respective proposed cap contributions (which, of course, would be allowed under the flexible permit), their frequency was extremely low—0.01% in the case of the No. 2 Parex Hot Oil Heater and 0.17% in the case of the West Crude Heaters—and they occurred almost exclusively during periods of CEMS malfunctions and process upsets and thus are not representative of actual emissions during operating conditions authorized by the permit.[13] FHR's CO CEMS data, therefore, disproves CFEJ's hypothesis that the short-term emissions from the Heaters might exceed the proposed short-term cap contributions.

But even if the Heaters' short-term emissions did exceed the proposed cap contributions, it would *not* invalidate FHR's previous demonstrations that short-term emissions from the West Refinery are protective of public health. At page 9, CFEJ cites 30 TEX. ADMIN. CODE § 116.111 for the proposition that the worst-case hourly emission rate must be shown to be protective of public health. Section 116.111 governs applications for "regular" air permits, not flexible ones, which are instead governed by § 116.711. But under either rule, an air permit applicant demonstrates protection of public health not on a source-by-source basis, but on a facility-wide basis. Moreover, in a flexible permit, individual sources are allowed to exceed their individual cap contributions, on a long-term or short-term basis, so long as the long-term or short-term caps

[10] CFEJ Brief at 5.
[11] FHR EX. 1 (Taylor pre-filed), 24:17-18; Tr. at 20:15-21:8 (Kirchner on cross); Tr. at 343:1-347:22 (Olson on direct).
[12] FHR EX. 3 (2007 CEMS data); FHR EX. 4 (2008 CEMS data).
[13] Tr. at 283:14-24, 286:9-22, 287:21-288:7, 288:8-289:10 (Taylor on direct).

are not exceeded.[14] As Mr. Taylor explained, because PM/PM_{10} and VOC emissions from the Heaters are such small percentages of the site-wide caps, and because there is so much extra space in the caps as demonstrated by FHR's monthly calculations, even if FHR had grossly underestimated emissions in calculating the updated cap contributions (which it did not), the caps, which are the emission rates that have been determined to be protective of public health, would *still* not be exceeded.[15] Again, this testimony was not contradicted by any record evidence.

Finally, FHR feels compelled to point out that many of the individual statements made by CFEJ in furtherance of the arguments addressed above are either unsupported or contradicted by the record testimony, or are otherwise incorrect. Here are some examples:

Page 4, 1st paragraph (citing Mr. Taylor's live testimony at 18:10-19:8):

> *"This amounts to a Party Admission that actual test data for a given source is preferable to the use of emission factors that are based upon data averages."*

In paraphrasing Mr. Taylor's statements regarding emission factors, CFEJ omitted the qualifying language, "that's available at the time." Contrary to what CFEJ is implying here, neither Mr. Taylor nor any other FHR or TCEQ witness testified that if source-specific data is not available at the time of preparing an air permit application, one should develop it just to calculate emissions.

Page 4, 3rd paragraph:

> *"The AP-42 factors were initially intended for use in estimating emissions from a large number of sources; that is, for large-scale emissions inventories."*

This statement has no citation to the record. Additionally, it is refuted by the AP-42 Introduction, which specifically acknowledges that "[e]mission factor use may also be

[14] Tr. at 19:20-20:5 (Kirchner on cross); Tr. at 27:5-17 (Taylor on re-direct); Tr. at 320:11-19 (Olson on direct).
[15] Tr. at 307:4-7, 309:1-5 (Taylor on direct).

appropriate in some permitting applications," and that "emission factors are frequently the best or only method available for estimating emissions, in spite of their limitations."[16]

Page 6, 2nd paragraph (citing Mr. Bilsky's direct testimony at 13:7-13):

> *"The testimony during hearing indicates that the simplest way to identify a worst-case factor is to assess the background data set used to calculate the average emission factor and to pick from the highest values within the available data a reasonable worst-case value for the worst-case short-term factor."*

Mr. Bilsky did not testify that this was the "simplest way" to identify a worst-case factor, or even that any air permit applicant ever does, or could do what CFEJ is suggesting FHR should have done. In fact, it is clear that Mr. Bilsky does *not* believe that air permit applicants should look beyond the factors themselves to the underlying raw data, because he, himself, has never done it.[17]

Page 6, footnote 13 (in reference to the data underlying AP-42 factors):

> *"Ms. Olson testified to working with the original data. TR. V. 2, p. 330, l. 18-23"*

CFEJ's purpose here is to imply that it would be easy for an air permit applicant to use the raw data underlying AP-42 factors in calculating emission rates. But Ms. Olson testified only to having worked with the data underlying the factors used to calculate fugitive emissions from pipes and other components in ammonia service,[18] which have nothing to do with the AP-42 factors for gas-fired combustion devices.[19] No witness testified to having worked with the raw data underlying the AP-42 factors, and CFEJ has no basis for suggesting that it can be readily accessed and interpreted by air permit applicants. In fact, an excerpt from the AP-42 Introduction cited on page 9 of CFEJ's Brief underscores why the raw data would be of limited

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[16] CFEJ Ex. 2 (AP-42 Introduction), pp. 1-2.
[17] Tr. at 62:7-63:2, 66:8-12, 67:7-22, 78:12-19, 116:17-20 (Bilsky on cross).
[18] The predicate for the testimony cited by CFEJ is at 329:16-20: "Q: Would that also hold true to the general methodology for developing the factors that FHR or Flint Hills Resources relied on in calculated the ammonia fugitive emissions in this application?"

usefulness: "Although the causes of this [between-source] variability are considered in emission factor development, this type of information is seldom included in emission test reports used to develop AP-42 factors."

Page 6, 3rd paragraph (citing the AP-42 Introduction):

> *"According to the Introduction section of the AP-42, the deviation of actual emissions from those calculated from emission factors have been found to vary by up to an order of magnitude from the average."*

This statement fairly paraphrases a statement from the AP-42 Introduction. However, CFEJ fails to acknowledge that it is not specific to the AP-42 factors for gas-fired combustion devices used by FHR. There are AP-42 factors for hundreds of different kinds of sources. The mere fact that emissions from some unspecified type of source was found to vary by up to an order of magnitude from the average for that source type does not mean that emissions from gas-fired combustion devices vary significantly from the AP-42 factors for this source type.

Page 9, 1st paragraph:

> *"Testimony in this case, as supported by EPA, in a February 2007 study titled 'Emissions Factor Uncertainty Assessment,' makes clear the issues of concern."*

Here, CFEJ repeats Mr. Bilsky's mischaracterization of the "Emissions Factor Uncertainty Assessment" study as having been written by EPA. While the study was funded and reviewed for publication by EPA, it was actually conducted *for* EPA by a consulting firm called RTI International.[20] It therefore does not represent EPA's position with respect to the use of emission factors, which is made clear not only by EPA's repeated approval of the use of AP-42

[19] Tr. at 370:23-371:10 (Olson on re-direct).
[20] CFEJ Ex. 3 ("Emissions Factor Uncertainty Assessment"), cover page.

emission factors in the air permitting context,[21] but also by the fact that use of AP-42 factors is specifically prescribed in regulations promulgated by EPA.[22]

Page 9, 2nd paragraph (citing Mr. Bilsky's direct testimony at 12:6-13:4):

> *"Mr. Bilsky's direct prefiled testimony argues that an emissions factor tool to quantify the uncertainty associated with use of emission factors might be simply adjusting the short-term emissions factor by amount from about 167% (ie one and two-thirds times) up to an order of magnitude increase (i.e. ten times) depending upon the particular issues associated with an individual case."*

Mr. Bilsky did *not* testify that "an emissions factor tool" might "simply" be adjusting the factor by somewhere between 167% and 1,000%. Indeed, it is hard to see how he could have credibly taken that position given that he has used AP-42 factors without adjustment on hundreds of occasions,[23] and there would be no apparent basis for choosing between an adjustment factor closer to 167%, or one closer to 1,000%, as there is no relationship between either number and the specific AP-42 factors used by FHR. Again, Mr. Bilsky's testimony was a general, theoretical discussion about the limitations of all emission factors—it bears no relevance to the practicalities of permitting gas-fired combustion devices such as the Heaters.

III.
CALCULATION OF SHORT-TERM AMMONIA CAP CONTRIBUTIONS FOR PIPING AND OTHER FUGITIVE COMPONENTS ASSOCIATED WITH THE SNCR SYSTEM INSTALLED AT THE FCCU CO BOILER

Throughout Sections I, II, and III of its closing argument, CFEJ, *for the first time*, makes the argument that the emission factors used by FHR to calculate the ammonia cap contributions for piping and other fugitive components associated with the selective non-catalytic reduction

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[21] Tr. at 357:13-358:18 (Olson on direct); Tr. at 229:1-4 (Kirchner on re-direct); Tr. at 43:20-44:21 (Olson on re-direct); Tr. at 298:11-299:24 (Taylor on direct).

[22] *See* 40 C.F.R. § 60.14(b)(1): " ... The Administrator shall use the following to determine emission rate: (1) Emission factors as specified in the latest issue of 'Compilation of Air Pollutant Emission Factors,' EPA Publication No. AP-42, or other emission factors determined by the Administrator to be superior to AP-42 emission factors, in cases where utilization of emission factors demonstrates that the emission level resulting from the physical or operational change will either clearly increase or clearly not increase."

system installed on the FCCU CO Boiler may not be sufficiently conservative to accurately estimate short-term, lb/hr, emission rates. Not only is this argument new and thus completely unsupported by the record evidence, it also is directly contrary to the testimony of CFEJ's lone witness. Specifically, both throughout his pre-filed testimony[24] and during the hearing,[25] Mr. Bilsky limited his critique of FHR's fugitive emission calculations to the application of control efficiencies when calculating short-term fugitive emissions (the appropriateness of applying the control efficiencies is addressed at pages 23-25 of FHR's Closing Argument). At no point did Mr. Bilsky even insinuate that the TCEQ fugitive emission factors, which are not AP-42 emission factors,[26] are in any way inadequate for calculating either short-term or long-term emissions. In fact, during the hearing, when asked about the appropriateness of applying control efficiencies to calculate short-term fugitive emissions, Mr. Bilsky explained that, given the nature of fugitive component emissions, requiring permit applicants to calculate emissions based on actual emissions data would be "too atrociously expensive" and, more importantly, is "not necessary."[27] Mr. Bilsky even went so far as to endorse the use of the TCEQ fugitive emission factors, stating: "Well, you have to understand, it's - - I'm saying it's okay to use the [fugitive] emission factor as AP-42 factors have been used."[28]

Although CFEJ's newly fabricated claim regarding the adequacy of the TCEQ fugitive emission factors is unsupported (and contradicted) by the record evidence, in its closing argument CFEJ contends that its claim is supported by the following general point: "[That] the application of average values (ie emission factors) to a large population or group is appropriate

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[23] Tr. at 62:7-63:2, 66:8-12, 67:7-22, 78:12-19, 116:17-20 (Bilsky on cross).
[24] CFEJ EX. 1 (Bilsky pre-filed), 15:4-16:5.
[25] Tr. at 172:1-15 (Bilsky on cross); Tr. at 192:24-193:22 (Bilsky on re-direct).
[26] Tr. at 370:23-371:10 (Olson on re-direct).
[27] Tr. at 193:5-22 (Bilsky on cross).
[28] Tr. at 193:3-5 (Bilsky on cross).

for long-term (ie many hours) emissions estimates but is not appropriate for short-term, worst-case, *individual source* emission representations."[29] However, even if this were a valid point, it is simply not relevant to the calculation of fugitive emissions because, as both Ms. Olson and Mr. Bilsky explained, fugitive emission calculations are not performed for *individual sources*, but are instead performed for groups of fugitive components.[30] In fact, in this case fugitive emissions were calculated for a group of 456 fugitive components.[31] Even according to Mr. Bilsky, using "average" emission factors in this context does not pose a problem because, as he testified, "[a]verages work in identifying large populations of parameters, either a *large number of sources for few hours* . . . or fewer number of sources for a lot of hours."[32]

IV.
REVISION OF DRAFT PERMIT SPECIAL CONDITION NO. 3 TO REQUIRE A REFERENCE TO QUANTIFICATION OF PM EMISSIONS WHENEVER VISIBLE EMISSIONS OCCUR, EXCEPT FOR PERIODS OF STARTUP AND SHUTDOWN

As explained at pages 26-27 of FHR's Closing Brief, this issue is not relevant to either of the two limited issues referred by the Commission. CFEJ's argument on this issue could be rejected for the additional reason that it makes no sense.

CFEJ's argument appears to be that, because Special Condition No. 3 allows some amount of visible emissions (no more than 5 minutes' worth over any two-hour period) from the Heaters as opposed to completely prohibiting visual emissions, FHR's proposed PM/PM_{10} cap contributions for the heaters must be wrong. But CFEJ offers no explanation of why this would be so. It is true that visible emissions are indicative of PM/PM_{10} emissions. But the fact that very short periods of visible emissions (i.e. PM/PM_{10}) may be released pursuant to the permit special conditions is not inconsistent with the fact that FHR has calculated a certain hourly

[29] CFEJ Brief at 11.
[30] Tr. at 335:9-10 (Olson on direct); Tr. at 216:12-14 (Bilsky on cross).
[31] FHR EX. 2 (permit amendment application), pp. 49-51 of 80.

PM/PM_{10} emission rate for the Heaters. CFEJ's assertion to the contrary is not supported with a single citation to the record or any logical argument of any kind. FHR, therefore, struggles to find anything additional to say in response, except to point out CFEJ's mischaracterization of Ms. Tamer's testimony regarding testing. In the second paragraph on page 13, CFEJ implies that Ms. Tamer endorsed the idea of requiring some testing of FHR's heaters. But she could not have been more emphatic in stating, "[w]e would never, never ask for testing for VOC or PM."[33] Again, there is nothing about these sources that would make PM/PM_{10} testing an appropriate requirement, and it should not be required for the additional reasons stated at pages 12-13 of FHR's Closing Argument.

V.
REVISION OF DRAFT PERMIT SPECIAL CONDITION NO. 4 TO DELETE THE AUTHORIZATION OF 100% NATURAL GAS FIRING IN THE HEATERS OR REVISION OF THE HEATER EMISSION RATE CALCULATIONS FOR CAP CONTRIBUTIONS TO INCLUDE 100% NATURAL GAS FIRING CASE

At pages 27-29 of its Closing Argument FHR adequately addressed the point made by CFEJ, and for the sake of efficiency, will not repeat those arguments here.

VI.
ALLOCATION OF TRANSCRIPT COSTS

FHR appreciates that CFEJ is represented by Rio Grande Legal Aide; however, it apparently has sufficient financial resources to have retained two experts, each of which testified in deposition to having been compensated several thousands of dollars for their testimony in this case. FHR maintains that, in order to at least partially reimburse FHR for the significant financial expenditures CFEJ caused it to incur by pre-filing clearly irrelevant testimony, CFEJ should bear the cost of the hearing transcript.

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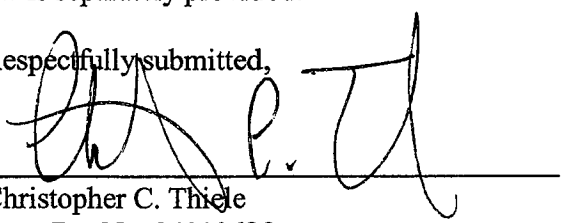
[32] Tr. at 185:20-23 (Bilsky on cross).
[33] Tr. at 264:12-20 (Tamer on re-direct).

VII.
CONCLUSION

Based on the record in this proceeding, and for the reasons set forth above and in its Closing Argument, FHR has demonstrated, by proof exceeding a preponderance of evidence,[34] and in satisfaction of the Commission's September 26, 2008 Interim Order, that: 1) its use of emission factors with regard to changes requested in the amendment application or the changes in the proposed permit special conditions and maximum allowable emission rate table ("MAERT") is adequate to assure compliance with all related applicable requirements and limits; and 2) the monitoring requirements that are proposed for change in the amendment application or changed in the permit special conditions or MAERT, as applicable, are sufficient to determine compliance with permit limits. Therefore, FHR respectfully requests that the ALJ recommend issuance of the amendment of Flexible Permit No. 8803A/PSD-TX-41348. A proposed order with proposed findings of fact and conclusions of law is separately provided.

Respectfully submitted,



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[34] 30 TEX. ADMIN. CODE § 80.17(a). The preponderance of evidence standard does not necessarily require that the party with the burden "explain or disprove the allegations of its opponent." *Gooch v. Davidson*, 245 S.W.2d 989, 991 (Tex. Civ. App.—Amarillo 1952, no writ).

CERTIFICATE OF SERVICE

I hereby certify that, on this the 2nd day of June 2009, a true and correct copy of the foregoing document has been served via hand delivery, facsimile, electronic mail, overnight mail, U.S. Mail, and/or Certified Mail, Return Receipt Requested, on the parties whose names appear below.

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